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The Separation of Venom Apparatus, Purification and Identification Method of Conotoxins in Cone Snail *Conus terebra thomasi*

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Abstract

Cone snails (genus: *Conus*) are groups of marine mollusks that make a group of toxin compounds (conotoxins) for different purposes. Several studies proved the medical properties of conotoxins and existence of different toxic compounds in different parts of venom apparatus. So, recognizing the simplest and the most suitable method for separating the venom apparatus and purification of conotoxins is necessary. For this purpose, several specimens of *Conus terebra thomasi* were collected from the Northern sandy coast of Larak Island and the shells of samples were cracked by vice. After pulling out the snail from its shell, drawing out of the venom apparatus was done by cutting the posterior section of foot muscle. Venom apparatus was divided into three parts, venom bulb, proximal and distal venom duct and each sample was freeze-dried. Extraction was done by three solvents (Acetone 100%, A mixture of Acetone100%-Methanol20% and Phosphate Buffered Saline) and the total protein of each extract was determined by Bradford protein assay. The results showed that the amount of total protein in two extracts (Acetone and Acetone-Methanol) were very low and cannot be measured by this method, but it is measurable in third extract (venom bulb: 38.79, proximal venom duct: 52.4 and distal venom duct: 46.01 mg/g dried tissue). By using electrophoresis method, different conopeptides were shown in different parts of venom apparatus. Also, the most suitable solvent between the checked solvents in this study is phosphate buffered saline because of high concentration of extracted conopeptides, and reducing the risk of tissue damage. Meanwhile, the extracted compounds are suitable for investigating their bioactivity.

Keywords: *Conus, Conotoxin, Venom apparatus, Dissection, Persian Gulf.*